

FIRST RECORD OF THE GENUS *PSEPHENOPS* (COLEOPTERA: PSEPHENIDAE) FROM MEXICO, WITH A DESCRIPTION OF A NEW SPECIES¹

Roberto Arce-Pérez, Rodolfo Novelo-Gutiérrez²

ABSTRACT.- *Psephenops mexicanus*, new species, is described based on specimens collected in a stream running through a cloud forest at Xico Viejo (1800 m asl), Veracruz State, Mexico, bringing the total number of described species assigned to the genus to seven. Complete illustrations are provided, for the first time, for the genus *Psephenops*.

The genus *Psephenops* (= *Xexanchorinus*) is comprised of six known species, with an apparent fragmentary distribution: *P. smithi* Grouvelle, 1898 (Antillean); *P. grouvellei* Champion, 1913 (Guatemala); *P. haitianus* Darlington, 1936 (Haiti); *P. maculicollis* Darlington, 1936 (Colombia and Costa Rica), *P. argentinensis* Delève, 1967 (Argentina) and *P. prestonae* Spangler, 1990 (Costa Rica). In this paper, we provide the first record of the genus for Mexico along with the description of a new species.

METHODS

Fifteen specimens were collected in a stream located at Xico Viejo village (1800 m altitude), Municipality of Xico, Veracruz State, Mexico. Individuals were initially preserved in ethanol 80% and some were later pinned; all collected material was examined. Male genitalia were extracted in ethanol, and potassium hydroxide (KOH 5%) was used to clear genitalia, which were used to make illustrations. Microphotographs were taken with a scanning electron microscope JEOL, model JSM T20 with magnification of 200x.

Psephenops mexicanus, NEW SPECIES

(Figs. 1-4)

DESCRIPTION: Holotype Male: Body oval, depressed; integument black, with reddish-yellow reflections, completely covered with iridescent, reddish-yellow, short setae; head, antennae, pronotum and scutellum black; elytra dark reddish brown, slightly elevated at humeral region; legs dark reddish brown, darker than elytra; ventrally reddish black, vestiture short, fine and dense, grayish, with iridescent, yellow reflections; total length 3.3 mm, maximum humeral width 1.5 mm.

Head (Fig. 1): Black and short, transverse; clypeus subrectangular, declivous at an angle of less than 90 degrees from the plane of the frons, distal margin widely emarginate; frontoclypeal surface with long, robust and stiff setae; vertex minutely punctate, with minute setae and a very shallow longitudinal furrow at middle. Antennae moniliform, 11 segmented, scape

¹ Received April 19, 1999. Accepted November 8, 1999.

² Instituto de Ecología, A.C. Departamento de Entomología. Apartado Postal 63, 91000 Xalapa, Veracruz, Mexico. E-mail: entomol@ecologia.edu.mx

larger than other segments, pedicel 0.60 length of scape and subglobose; 8 flagellar segments small, apical segment acuminate. Eyes lateral, rounded, very prominent, dark reddish brown; with post-ocular area amber yellow. Labrum similar to clypeus but shorter; maxillary palpi 4 segmented (Fig. 2), covered with long setae; segment 1 smallest; the apical segment largest; relative proportion of segments: 0.40, 0.80, 0.60, 1.0, basal segments 1-3 subconical; segment 4 oval, slightly depressed and ending in an inner subapical ridge. Labial palpi very short (Fig. 2), 3 segmented; segments 1-2 rounded and wide, segment 3 subconical and slightly longer than preceding ones.

Thorax: Pronotum black and subtrapezoidal (posterior margin 1.4 mm, lateral margin 0.78 mm); anterior margin arcuate; posterior margin bisinuate and almost as wide as elytral base (Fig. 1); lateral margins straight along anterior half and expanded laterally on posterior half; posterolateral angles subacute; all margins narrowly rimmed; pronotal disc with middorsal longitudinal carina (Fig. 1), carina well developed at distal half, and a wide, shallow, circular depression at each side of carina; in profile view, pronotal disc (except for posterolateral expansions) convex; pronotal surface with a punctation coarser than that of the head, and covered with short, cineraceous-yellow setae, and long dark reddish setae, setae shorter than those of head. Scutellum short and black, bluntly-pointed at apex.

Elytra: dark reddish brown, with short yellow setae and long reddish-yellow setae; sides parallel on basal 0.75, then gradually converging rearwardly; base depressed on each side within humeri; surface without striae; length (from base to apex of suture) 2.45 mm; width (across humerus), 1.55 mm. Prosternum black, short and slightly carinate; with long, concave, lanceolate and slightly carinate postcoxal process (Fig. 2), which reaches anterior half of mesosternum. Mesosternum black, short; with wide groove for reception of prosternal process. Metasternum black, large and bulky.

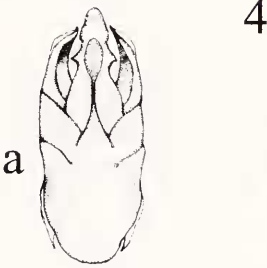
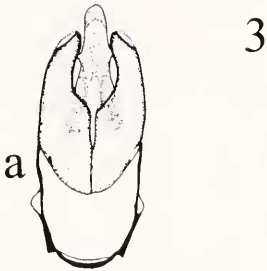
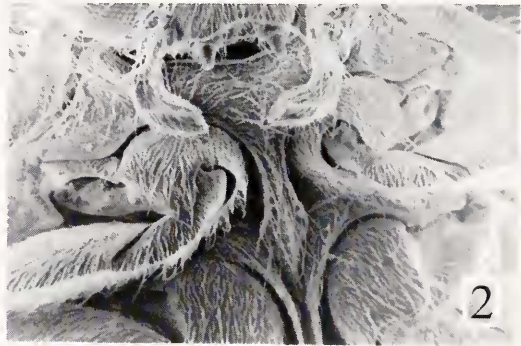
Legs: procoxae globose, mesocoxae conical, and metacoxae transverse; femora robust with yellowish-gray setae; tibiae slender; metatibiae as long as femora; protibiae with distinct apical posterolateral denticle; tarsi, 5 segmented, tarsomeres 1 and 2 bilobed, with ventral, moderately rolled-up, spongy-like pad covered with dense short pubescence ventrally; spongy-like pad of tarsomere 1 extending distally to level where tarsomere 2 divides; spongy-like pad of tarsomere 2 largest, extending distally and covering area beneath tarsomeres 3,4 and most of 5; proportional length of tarsomeres: 0.30, 1.0, 0.25, 0.20, 0.65; a pair of long, curved, and slender apical claws present; with small basal tooth.

Abdomen: Vestiture short, fine, dense and grayish; with distinct, yellow, iridescent reflections on segments 1-3; setae long, black and stout on segments 4-7. Seven visible sterna in relaxed specimens; usually the segment 6 hidden under segment 5. Sternum 2 the largest. Posterior margin of sternum 1 deeply concave at middle, sinuate at sides. Posterior margin of sternum 2 as in sternum 1 but concavity shallow medially. Posterior margin of sterna 3 and 4 straight, that of sternum 5 with a wide and shallow concavity at each side of midline. Sternum 6 very short, posterior margin widely concave. Pygidial plate narrow, oval, as long as sternum 5, and densely covered with long and stiff black setae.

Genitalia (Figs. 3-4): Trilobate, total length 0.57 mm. Paramere, in dorsal view, as in Fig. 3a; length 0.27 mm. Penis longer than paramere; in ventral view (Fig. 4a), apical half subtriangular, lanceolate; with a small tooth-like lateral projection at each side of basal 0.50, bearing a longitudinal lance-shaped sclerite along base; penis length, 0.22 mm. Phallobase, in lateral view, concave dorsally; in ventral view, bulky, hemicylindrical; length 0.24 mm, width 0.22 mm.

Female: Unknown.

Variation in paratype series.- Some specimens have the elytra and legs black or reddish-brown; posterior margin of abdominal sternum 5 not clearly convex at middle. One specimen has antennal segments 5 and 6 almost merged.



Figs. 1-4, *Psephenops mexicanus* sp. nov. 1) Details of head and pronotum showing middorsal carina, dorsal view; 2) detail of venter showing prosteral process; 3) and 4) male genitalia: 3a) diagram, dorsal view, showing bulky phallobase and paramere, 3b) microphotograph, dorsoapical view; 4a) diagram, ventral view, showing long penis and lanceolate apical half, 4b) microphotograph, ventrobasal view.

Measurements (in mm): total length of body, 3.15-3.55; maximum width 1.45-1.7; length of pronotum 0.75-0.8, basal width 1.35-1.45; elytral length 2.25-2.60.

DISCUSSION

Psephenops mexicanus, n. sp., may be separated from the other species of the genus by the following combination of characters: sides of pronotum straight on anterior half, suddenly and distinctly convex at posterior half; segment 4 of maxillary palpus almost twice as long as segment 3 and only slightly longer than segment 2; elytra without conspicuous striae; seven abdominal sterna visible; male paramere with the lateral sides almost straight, apex subtruncate; penis lanceolate and conspicuously longer than paramere. *Psephenops mexicanus*, n. sp., resembles other species in the following features: total length (*grouvellei*) (Champion, 1913); antennal scape almost two times longer than pedicel (*haitianus* [Darlington, 1936] and *prestonae* [Spangler, 1990]); number of sterna visible (*haitianus*, *maculicollis*, *smithi* [Darlington, 1936]; *prestonae* [Spangler, 1990]). Apparently, *P. mexicanus* is most similar to *P. maculicollis*.

Finally, it is important to note that this species represents the seventh described species of the genus, and is the northernmost record of the genus *Psephenops*.

Type material. Holotype labeled: "MEXICO, Veracruz, Xico, Xico Viejo; 1800 m, bosque mesófilo de montaña, 3-VIII-98, R. Arce col." Nine male paratypes, same data as holotype, except: 25-VII-97, 1♂; 26-VII-98, 4 ♂♂. Holotype and paratypes deposited at Colección Entomológica, Instituto de Ecología, A.C., Xalapa, Veracruz, México (IEXA).

Etymology. Because it is the first record of the genus for the country, it is named *mexicanus*.

Type locality. Xico Viejo, Xico, Veracruz, México.

Habitat. Adult males of *Psephenops mexicanus* were captured in a stream with rapid water flow, on emergent and overhanging riparian vegetation, as well as on big rocks not exposed directly to the water current but in the spray zone.

ACKNOWLEDGMENTS

We thank Alonso Ramirez (Georgia) for his invaluable help with the English syntax for the final manuscript and also providing part of the literature. Tiburcio Lázey Aponte took the microphotographs and Cesar Rojas composed the illustrations. Finally, special thanks are due to Harley P. Brown (Oklahoma), and an anonymous reviewer for their comments and suggestions for the final manuscript.

LITERATURE CITED

- Champion, G.C.** 1913. III. Notes on various Central American Coleoptera, with descriptions of new genera and species. Trans. Entomol. Soc. London. 1913:62-169.
- Grouvelle, A.H.** 1898. Clavicornes de Grenada et de St. Vincent (Antilles) recoltés par M.H.H. Smith, et appartenant au Musée de Cambridge. Notes from the Leyden Museum 20:35-48.
- Darlington, P.J.** 1936. A list of the West Indian Dryopidae (Coleoptera) with a new genus and eight species, including one from Colombia. Psyche 43:65-83.
- Delève, J.** 1967. Contribution à l' étude des Dryopoidea (Coleoptera). XIX. Notes diverse et descriptions d' espèces nouvelles. Bull. Ann. Soc. Entomol. Belgique 103:414-445.
- Spangler, P.J.** 1990. A new species and new record of the water-penny genus *Psephenops* (Coleoptera: Psephenidae) from Costa Rica. Entomol. News 101(3):137-139.